The *Wisconsin Statewide Mammal Inventory*

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Partner Agencies & Organizations:

- DNR Wildlife Mgmt., Wildlife and Forestry Research, Endangered Resources, and Forestry
- Marshfield Medical Res. Foundation (MMRF)
- Beaver Creek Environmental Resources Center
- UW Madison Zoological Museum (UWZM)
- UW Madison Dept. of Wildlife Ecology
- UW Green Bay Dept. of Env. Science & Policy
- UW Milwaukee Field Station

Funding Sources:

- WCRP, Dept. of Interior..... **$80,000**
- SWG Program, Dept. of Interior..... **$80,000**
- Focus on Energy, WI DOA..... **$255,500**[1]
- ATRI, WDNR..... **$45,000**

[1]"Biodiversity of Peatlands Project" funding applicable to small mammal inventories.

Jackson conducted Wisconsin's only complete mammal inventory from 1898 to 1952. Fifty years have passed without appreciable knowledge being acquired on how mammal distributions have changed along with significant changes in our land cover and management.

Wisconsin has 69 native mammal species, of which 4 are considered extirpated, 17 are regulated game animals (although occurrence of the White-tailed Jackrabbit in the state is very doubtful), 10 are protected from harvest, and 38 are unprotected (nongame) animals. The later group is mostly comprised of shrews, bats, weasels, grounds squirrels, chipmunks, voles, and mice along with a few unprotected furbearers.

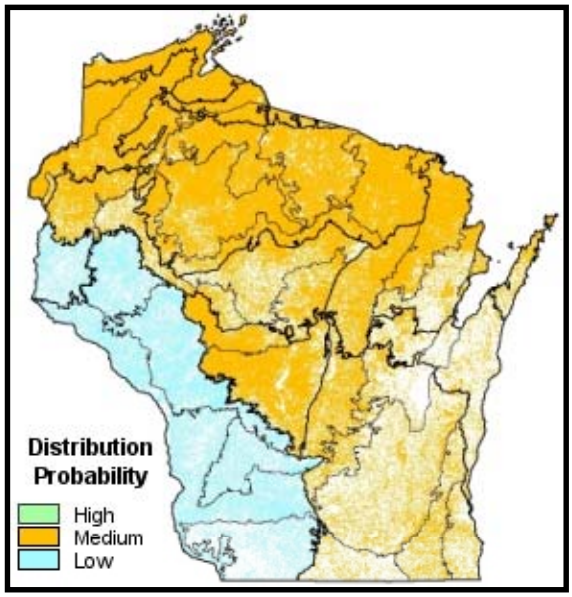
Distribution and abundance of many mammal species have changed significantly since the last inventory. Examples includes the range contraction of the Western Harvest Mouse following changes in farming practices, the northward expansion of the southern flying squirrel and Virginia opossum, the loss of the prairie vole from most of its native range, and suspected distribution of woodland voles in pockets of southeast Wisconsin. Unfortunately, these changes are only known from scattered research projects, anecdotal data, and, to some degree, professional speculation.

Objectives: This project will focus on species with deficiencies in habitat, population and distribution data (excluding Chiroptera - bats). For approximately 40 smaller, primarily nongame mammal species, we are in the process of determining:

1. Local and regional distribution
2. Relative abundance
3. Habitat association
4. Population trend and status
5. Influence of land use and management
6. Ecology of vector-borne diseases

Methods: No one agency or organization is likely to accomplish a thorough statewide mammal inventory due to cost, complexity, and scale. We are using a combination of agency and University partnerships, citizen science initiatives, volunteer efforts, and internal DNR resources to pursue the objectives. This runs the spectrum from project design, to field data collection, laboratory analyses for diseases, museum curation, archival of genetic material, and the management and dissemination of data and information. Our general methods include:

1. Mapping historic small mammal distributions from the literature and museum records.
2. Mapping projected current mammal distributions based on recent research, anecdotal data, and habitat matrix models (ex. below).
3. Developing data collection tools & mechanisms
4. Field inventories via trapping, camera, and sign surveys conducted by project staff.
5. Training and equipping DNR biologists, UW students, and affiliated researchers to conduct small mammal inventories and providing technical assistance and resources to external research projects.



Potential distribution of the Masked Shrew (*Sorex cinereous*) by Ecological Subsection in Wisconsin based on known historic distribution, scattered research projects and projections concerning suitable habitat.

6. Developing citizen science projects as a tool to map distributions of readily identified species.
7. Use of "watch-lists" and seasonal updates to stimulate reporting of incidental sightings.

Preliminary Results: New county records have been found for the red-backed vole and star-nosed mole in Waukesha County, woodland jumping mouse in Wood County, star-nosed mole in Waupaca County, and arctic shrew in Dane County. A rare prairie deer mouse (*Peromyscus maniculatus bairdii*) also was captured in Dane County. Project staff have generated interest in small mammal inventories at UW Madison, Milwaukee, Oshkosh, Parkside, and Waukesha along with Alverno College. We will present additional small mammal training to UW-Madison students at the Kemp Field Station and UW Milwaukee students at Cedarburg Bog.

Much work has been accomplished on preparing databases for the inventory, acquiring equipment and supplies, testing new small mammal sampling techniques, and preparing training materials. Work is underway to compile a field guide to small mammal identification, trapping, & marking.

Upcoming Products:

- Wisconsin mammal atlas and managers' reference manual to predict fine scale species distributions, document species habitat associations, and address management needs.
- Data on species status for revision of the State's Endangered, Threatened, and Working lists.
- Data on the impacts of land management options to mammal populations.
- Data on the prevalence, distribution, and transmission of diseases in small mammal populations.
- Publicly accessible data, educational materials, and training opportunities.

Management Applications: With increasing interest in nongame wildlife, the DNR will need to proactively address additional taxa in future ecosystem management plans. This project is designed to strike deep into the information gulf which currently limits population and habitat management to a relatively small number of wildlife species. The mammal inventory will also provide data on poorly documented game animals such as weasels, squirrels, and rabbits and "nuisance animals" such as pocket gophers, ground squirrels, and certain species of vole and mice. Biologists also need data on the ecology of infectious diseases in order to respond to a variety of potential situations. Our strong partnership with MMRF will clarify and expand our knowledge of epidemiological issues. We will also have the data to objectively reassess the biological and legal status of many species.

Timeline:

2001 to 2003 - Field work in southern WI. Data collection protocols & tools developed. Partnerships formed with MMRF, UWZM, et al. Emphasis on training and equipping volunteers & partners. Citizen science programs started.

2004 to 2010 - Training and equipping continues. Project staff survey areas with insufficient coverage. Citizen science and partnerships expanded.

2010 - Reports, maps, and habitat models will be produced throughout the project as adequate data are available. Sufficient data should be available by 2010 for a revision of "Mammals of Wisconsin."